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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/091,302 | 03/06/2002 | Yoshihiko Shimanuki | HITA.0176 | 8161 |

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EXAMINER

ZARNEKE, DAVID A

ART UNIT PAPER NUMBER

2827

DATE MAILED: 10/01/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/091,302

Applicant(s)

SHIMANUKI ET AL.

Examiner

David A. Zarneke

Art Unit

2827

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 81-84 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 81-84 is/are rejected.
- 7) ☒ Claim(s) 84 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 March 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

Claim 84 is objected to because of the following informalities: The second line of recites "allover", for examination purposes the examiner assumed that this phrase was intended to read "all over". Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 81-84 are rejected under 35 U.S.C. 102(b) as being anticipated by Tsuji et al., US Patent 5,656,550.

Tsuji teaches a method of manufacturing a semiconductor device comprising the steps of:

providing a metal substrate (27) having a front surface, a rear surface, first grooves on the front surface partitioning the front surface in parts, second grooves on the rear surface, each of the second grooves being arranged directly opposite to one of the first grooves across the metal substrate (Figures 13A, 17A, 18A & 20C);

providing a semiconductor chip (41) having a front surface, a rear surface, electrodes formed on the front surface;

fixing the semiconductor chip on the front surface of the metal substrate;
electrically connecting the electrodes of the semiconductor chip with parts of the front surface of the metal substrate by conductive wires (43), respectively;
forming a resin body (23) which seals the semiconductor chip, the conductive wires, and the parts of the front surface of the metal substrate; and
after the resin body forming step, etching the rear surface of the metal substrate so as to expose bottoms of the second grooves and electrically isolating the parts of the front surface of the metal substrate (Figures 13B, 18B & 21B).

Regarding claim 82, Tsuji teaches an etching step involving maintaining parts of the rear surface directly opposite to the parts of the front surface across the metal substrate un-etched so as to protrude therefrom at the bottoms of the second grooves (Figures 13B, 18B & 21B).

With respect to claim 84, Tsuji teaches etching the bottom surface of the terminal outer terminal in order to separate the pole terminal portions and the frame terminal (12, 63+ & 15, 29+).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim 83 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuji et al., US Patent 5,656,550, as applied to claim 81 above.

Regarding claim 83, while Tsuji teaches a etching the rear surface of the metal substrate using a liquid (17, 34+), it would have been obvious to one of ordinary skill in the art to use immersion to apply the liquid because immersion is a conventionally known in the art technique to apply a liquid etchant.

The use of conventional materials to perform there known functions in a conventional process is obvious. In re Raner 134 USPQ 343 (CCPA 1962).

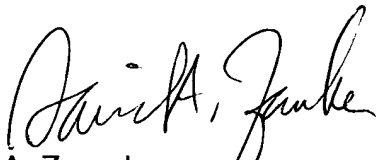
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David A. Zarneke whose telephone number is (703)-305-3926. The examiner can normally be reached on M-F 10AM-6PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamand Cuneo can be reached on (703)-308-1233. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)-308-6789.

David A. Zarneke
September 22, 2003


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